



FAMILY

Parkinson's Disease

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Quick Facts...

Parkinson's Disease is a chronic, progressive, neurological disorder resulting from a lack of the chemical dopamine in the brain.

The specific cause is unknown but research shows it results from the destruction of the part of the brain called the substantia nigra.

There is no cure but there are many medicines that help alleviate the symptoms.

Levodopa (L-dopa) is usually prescribed. Once in the brain, it is converted to dopamine.

Rehabilitation plays a key role in treating a Parkinson's patient. Rehabilitation consists of physical, speech and occupational therapy.

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Incidence

More than 1.5 million Americans have Parkinson's Disease; nearly 60,000 new cases are reported each year. Although Parkinson's can strike people in their 20s, 30s and 40s, it is most likely to affect adults over 50. One out of every 500 people over 50 in the United States is afflicted with Parkinson's. It affects more people than multiple sclerosis, muscular dystrophy, and Lou Gehrig's Disease combined. Although the incidence of Parkinson's increases with age, it is not part of normal aging. Only 0.5 percent of people 65 and older have Parkinson's.

Definition and Symptoms

Parkinson's Disease is a chronic, progressive, neurological disorder resulting from a lack of the chemical dopamine in the brain. Symptoms are many and can be different for each person. The four major symptoms are tremors, muscle stiffness or rigidity, slowness of movement, and difficulty with balance and walking. Other symptoms include a change in handwriting (small, cramped handwriting), trouble getting in and out of a car or a chair, a change in voice or difficulty in speaking, diminished facial expressions (loss of smiling and the appearance of staring), and depression.

Causes

The specific cause of Parkinson's Disease is unknown. We do know from research that this disease results from the destruction of the part of the brain called the substantia nigra. The substantia nigra is made up of cells called neurons or nerve cells that perform the work of the brain. When the nerve cells in the substantia nigra are destroyed, the symptoms of Parkinson's result.

The substantia nigra works with another part of the brain called the basal ganglia, which itself is made up of the caudate nucleus and the putamen. Together, these parts of the brain initiate and control body movements. The nerve cells in the substantia nigra make a chemical called dopamine, which is important for the basal ganglia to correctly program body movements. Most of the therapies for Parkinsonism are directed towards replacing the action of the lost dopamine in the basal ganglia.

Diagnosis

The clinical picture of Parkinson's can be so varied that absolute clinical diagnosis may not always be possible. Several diverse factors (including toxins, pharmacologic agents, and the simultaneous atrophy of many systems) can produce clinical symptoms almost indistinguishable from Parkinson's. Nevertheless, a sufficient number of criteria exist to make a fairly accurate

diagnosis. The presence of at least two of three motor signs — tremors, bradykinesia (extreme slowness of movement), and rigidity — is usually used. Persistence of these signs for several years may clarify and specify the diagnosis. However, until a definitive biological marker of Parkinson's is discovered, clinical diagnosis remains difficult.

Treatment

There is no cure for Parkinson's Disease. However, there are many medicines that help alleviate the symptoms. A neurologist may try several medicines before finding the one that will help the most. Each patient reacts to medicines differently. Daily exercise is as important as the medication.

A drug known as levodopa (L-dopa) is usually prescribed for the treatment of symptoms of Parkinson's Disease. Once in the brain, L-dopa converts to dopamine, replacing the substance that is lost through the disease process. When taken in pill form, the drug is absorbed into the bloodstream and ultimately into the brain.

To ensure that sufficient amounts reach the brain, carbidopa is prescribed. Carbidopa reduces the conversion of L-dopa in tissues other than the brain. Sinemet, a drug frequently prescribed for Parkinson's patients, combines L-dopa and carbidopa. Sinemet helps improve the patient's response to L-dopa, and reduces some of its side effects. L-dopa is absorbed into the blood stream through the small intestine. However, if Sinemet is taken with meals, there may be a delay in the Sinemet getting out of the stomach and reaching the small intestine. The effect of the Sinemet may then be delayed. Sinemet should be taken on an empty stomach.

Occasionally, physicians and pharmacists may recommend that Sinemet be taken with meals. This recommendation is left over from the days when there was no carbidopa to counteract the side effects of L-dopa. In the past, patients who took plain L-dopa frequently became nauseated, and taking L-dopa with something to eat often helped prevent the nausea. Now, with the addition of carbidopa, nausea is seldom a problem. As a result, there is no reason to take Sinemet with meals and many good reasons not to.

The drugs described above treat only the symptoms of Parkinson's. Recently, medicines have been discovered that help delay the progression of the disease. One of these medicines is Deprenyl. In a study involving 800 patients, Deprenyl bought time for patients by delaying the progression of Parkinson's for roughly nine months, compared to a control group of patients who did not take the drug. Deprenyl and similar drugs such as Eldepryl are still being researched with regard to their effectiveness in arresting the progression of Parkinson's.

Nutrition

Careful attention to diet is important for Parkinson's patients taking L-dopa. These patients must avoid (or eat sparingly) foods high in protein and amino acids (e.g., milk and milk products, lentils, meats, peas and nuts). These foods disrupt the process whereby levodopa is absorbed into the brain. L-dopa has to be carried from the blood to the brain by an enzyme in order to work. This enzyme also transports certain amino acids into the brain. If there are large amounts of these amino acids in the blood stream (such as occurs after eating a meal high in protein), the enzyme will be too busy transporting the amino acids and not transport the L-dopa. Not enough L-dopa will get into the brain to relieve the symptoms of Parkinson's. Some patients even find their symptoms worse following a large protein meal. However, for most patients this is not a problem.

There has been considerable publicity about restricting protein in the diet of Parkinson's patients. Research indicates this is not necessary for all patients. Furthermore, it is necessary to eat a certain amount of protein each day in order

References

A Patient's Perspective: Living With Parkinson's Disease or Don't Rush Me! I'm Coping as Fast as I Can, by *Jon Robert Pierce*, Knoxville, Tennessee: *Spectrum Communications*, 1989.

Caring for the Parkinson Patient — A Practical Guide, edited by *J. Thomas Hutton and Raye Lynne Dippel*, Buffalo, New York: *Prometheus Books*, 1989.

Parkinson's Disease — A Guide for Patient and Family, by *Roger Duvoisin*, New York: *Raven Press*, 1991.

Improving Communication in Parkinson's Disease: A Guide for Patient, Family, and Friends, by *Richard Katz, Marsha Davidoff and Gary Wolfe*, Danville, Illinois: *Interstate Printers and Publishers*, 1988.

Checklist for an Exercise Program

- *Exercise when you are well rested and move most freely.*
- *Wear loose, comfortable clothing and shoes with good support.*
- *Include adequate rest periods in your exercise program or divide your program into shorter sessions.*
- *Move slowly through each exercise and avoid bouncing motions.*
- *Maintain normal breathing throughout exercises.*

to get enough of the amino acids. Otherwise the body will break down its own tissues for protein. For patients who find that high protein meals worsen their symptoms, reducing the protein and breaking the diet into several smaller meals may help. Dietitians can help plan diets since not all proteins contain enough of the essential amino acids.

Vitamin B₆ can interfere with the action of L-dopa; however, it usually takes large doses to dampen the effects of L-dopa. Normal amounts of B₆ in a regular diet usually are too small to be of much consequence.

Parkinson's patients should not attempt to restructure their diets without the advice of their physicians.

Exercise

Parkinson's Disease causes slowness of movement, muscle rigidity and joint stiffness. It also can create changes in posture, walking and endurance. Daily tasks, such as rising from a chair or turning in bed, can be difficult. Many Parkinson's patients are encouraged to perform regular exercise to help improve mobility.

Rehabilitation

Rehabilitation plays a key role in treating a Parkinson's patient. Physical therapists teach exercises to improve speed and movement. Stretching and manipulative exercises help improve speed and movement and decrease muscle rigidity. Techniques and exercises to deal with speech difficulties, nasal monotone, and decline in speech volume are taught by a speech therapist. Occupational therapists find ways to modify activities and use adaptive equipment to compensate for physical losses.

Resources

Parkinson's patients and their families can receive information and help by joining a local chapter of the American Parkinson's Disease Association. Contact the national office at 60 Bay St., Staten Island, New York 10301, (800) 223-2732. The following publications are available from APDA:

- Basic information about Parkinson's Disease (4-page brochure; available in English).
- Parkinson's Disease Handbook (40-page booklet available in English, Spanish and Italian).
- Coping With Parkinson's Disease (88-page booklet available in English).
- Be Active — A suggested exercise program for people with Parkinson's Disease (25-page pamphlet available in English and Japanese).
- Equipment and Suggestions (19-page pamphlet available in English).
- Speech problems and swallowing problems in Parkinson's Disease (17-page booklet available in English and Japanese).
- Good nutrition and Parkinson's Disease (26-page booklet available in English).

All of the pamphlets and booklets listed above cost \$.55 each.

APDA chapters have been established in Denver, Greeley, Pueblo and Grand Junction. For more information about local resources, contact the APDA Information and Referral Center, Colorado Neurological Institute, 300 E. Hampden, Suite 205, Englewood, Colorado 80110, (303) 781-5788. Help may also be received by contacting the University of Colorado Health Sciences Center at (303) 270-7296.

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